STATEMENT OF CONSIDERATIONS

ADVANCE WAIVER OF THE GOVERNMENT'S U.S. AND FOREIGN PATENT RIGHTS IN INVENTIONS MADE BY GENERAL ELECTRIC COMPANY'S CORPORATE RESEARCH AND DEVELOPMENT IN THE PERFORMANCE OF GRANT NO. DE-FG03-99SF21931 UNDER DOE'S NUCLEAR ENERGY RESEARCH INITIATIVE (NERI) PROGRAM
DOE WAIVER NO. W(A)-00-005, (SAN-683)

The Petitioner, General Electric Corporate Research and Development, has submitted a petition for an advance waiver of the Government's domestic and foreign rights to inventions made under the above cited Grant.

Background

In January 1997, the President requested his Committee of Advisors on Science and Technology (PCAST) to review the current national energy research and development (R&D) portfolio and provide a strategy to insure that the U.S. had a program to address the nation's energy and environmental needs for the next century. In its November 1997 report responding to this request, the PCAST Energy Research and Development Panel determined that assuring a viable nuclear energy option to help meet our future energy needs is important and that a properly focused R&D effort should be implemented by the Department of Energy (DOE) to address the principal obstacles necessary to achieve this goal. These obstacles include issues involving nuclear waste, proliferation, economics, and safety. In response to these recommendations, DOE proposed the Nuclear Energy Research Initiative (NERI), composed of projects selected from individual or collaborative applications from universities, the DOE national laboratories, industry, and non-profit organizations.

DOE received FY 1999 funding under the Energy and Water Development Appropriation Act of 1999, Public Law 105-245, which stipulated that the NERI Program should provide up to $19M to universities, private industry, and the national laboratories for the purpose of conducting basic science research and development in the fields of new nuclear reactor design, advanced fuel design, proliferation resistance, treatment and storage of nuclear waste, and other related areas such as materials and computational science. A solicitation, DE-PS03-99SF21764, announcing the FY 1999 NERI assistance program was published in the Federal Register by DOE's Oakland Operations Office on Nov. 6, 1998. Applications were evaluated in accordance with the Merit Review System as required by 10 CFR Part 600. Awards were based upon the published technical evaluation criteria. This particular project was funded for $100,000 for the period 8/99 through 7/00. The entire project cost is estimated to be $355,000 and run through July of 2002.

This selected research project will develop and test two novel damage-resistant alloy concepts that offer strong promise to delay or eliminate the time-dependent evolution of hardening, stress corrosion cracking (SCC), void swelling and embrittlement in reactor core components. The proposed research strategy capitalizes on unique national laboratory, industry and university capabilities to generate basic material science which will impact next generation nuclear power systems. The proposed work will be integrated with fundamental research funded by the DOE Office of Basic Energy Sciences (BES) at Pacific Northwest National Laboratory (PNNL) and with focused international projects funded at PNNL, General Electric Corporate Research & Development Center (GECRD) and the University Michigan (UM). This leveraged approach will facilitate the technical advances envisioned under the NERI Program by creating a collaborative team effort which will examine the science necessary for development of the next generation materials that meet advanced reactor performance goals.

Previously patented work at GECRD has demonstrated that additions of the Pt-group metals into the corrosion film or into the bulk alloy can dramatically improve SCC resistance in high temperatures water. Key experiments will be SCC crack growth studies in 300°C reactor water environments at GECRD on high-strength, non-irradiated alloys. General Electric has mapped this behavior in the past in standard 304 stainless steel and light water reactor-irradiated materials which is particularly important in developing an understanding of radiation-induced changes in grain boundary structure and composition. The Petitioner has worked in this area of research for 25 years and has over 140 publications and 9 patents, including several on the noble metal technology that will be the thrust of this project. According to their petition, the Grantee has invested over $1 million dollars per year, for over 20 years of General Electric internal monies, at GECRD alone attempting to understand and mitigate SCC and IASCC in light water reactors.

Analysis

Since GECRD has spent more than $30 million dollars in past years researching and developing damage resistant alloys, DOE's contribution of $355 thousand dollars to this project is basically viewed as providing increased funding to a specific ongoing privately-funded research effort. A number of the proposed concepts and overall guidance for this project were heavily influenced by GE's expertise, not to mention the vast facilities, estimated at $10 million, that have been constructed by the Petitioner for state-of-the-art evaluation of stress corrosion cracking. Further, another division of General Electric, GE Nuclear Energy, uses noble metal technology, alloys and coatings, very actively commercially and also makes a variety of components that are designed for radiation resistance. Hence, should effective and novel damage resistant alloys be developed, General Electric is in a unique position to capitalize on their use as a leading world manufacturer of boiling water reactor components.

Scope of Waiver

It is the purpose of this advance waiver to provide for a waiver of the Government's domestic and foreign patent rights under the authority of 42 USC 2182 and 5908, in accordance with DOE's patent waiver regulations at 10 CFR 784.4. In particular, the scope of this advance waiver is directed to those inventions conceived or first actually reduced to practice by the employees of General Electric Company during the course of its research and development project under the aforementioned Grant. It is also an object of this advance waiver that the Petitioner, which initially executed the Grant containing the clause at 48 CFR 952.227-13, be able to retain the patent rights to their sole or joint (undivided) subject inventions in accordance with the terms and conditions set forth in 48 CFR 52.227-12 as amended by 10 CFR 784.12. This waiver is subject to DOE's retention of a royalty-free, non-transferable, irrevocable, nonexclusive license to practice any subject invention by or on behalf of the U.S. Government anywhere in the world, march-in rights and a U.S. preference provision comparable to those set forth in 35 U.S.C. 202 and 204. In addition, the attached U.S. Competitiveness provision will be included in the Patent Rights-Waiver clause per DOE policy. Lastly, GECRD has agreed to third party licensing of background technical data in accordance with 48 CFR 952.227-14 Alternate VI.

Conclusions and Recommendation

The U.S. Congress has set aside special funding for the NERI Program with the purpose of promoting nuclear research in order to ensure that it remains a viable future energy option. An advance waiver of the scope described hereinabove should foster the commercial utilization of inventions arising from the NERI Program by facilitating transfer of invention rights from the Government to the General Electric Company, thereby making the benefits of this material science research widely available to the public in the shortest practicable time. Grant of this advance waiver will serve to encourage participation in this DOE Program by providing assurance that statutory Government ownership of inventions will not interfere with private industry commercialization plans. Regarding statutory patent waiver considerations, GECRD's commercial position should expedite utlization of the research and development findings in the field of applied nuclear technology. Therefore, grant of this advance waiver will serve to promote the commercial use of the results, which is the intention of the NERI Program, by leaving invention rights with the private sector.

Granting of this advance waiver should not result in adverse effects on competition or market concentration since the NERI Program consists of a diverse collection of projects, each of which is specifically directed to advancing a particular area of nuclear technology with the objective of maintaining a future domestic market and a competitive position overseas. The NERI Program generally involves projects closely or directly related to technology previously developed at private expense and on which there is, or is expected to be, a private commercial interest established by the participants. In this case, the market for new components of damage

resistant alloys is not currently a large market. Although the success of this NERI Program may significantly alter the economics of the nuclear energy industry in the long term, e.g. after ten years, it is likely that a five year period of time is necessary before these new technology concepts can be proven in the field. Hence, this waiver is viewed as having a limited effect on competition, especially in the near term. On balance, the disposition of invention rights granted by this advance waiver should serve to enhance competition by encouraging development of new or improved technologies, rather than serving to concentrate markets. Again, the Petitioner has spent more than $30 million in past years researching damage resistant alloys and GECRD has agreed to the licensing of its background technical data in accordance with 48 CFR 952.227-14 Alternate VI. This will give the Government and the private sector potential access to the technology. Since this project is essentially providing modest increased funding to an ongoing privately-sponsored R&D program of substantial magnitude, DOE's statutory waiver considerations are viewed as being substantially met. However, grant of this waiver should not be viewed as a precedent for granting advance waivers without substantial cost-share. We anticipate there may be follow-up work in this Program and DOE would expect contractor cost-sharing of any such work to qualify for further waivers in the future.

Accordingly, in view of the statutory purposes of DOE waiver policy, and the objectives for the Nuclear Energy Research Initiative, and in view of the factors to be considered under DOE's statutory patent waiver policy, all of which have been considered, it is determined that the advance waiver set forth above will best serve the interest of the United States and the general public. It is therefore recommended that this waiver be granted.

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Based on the forgoing Statement of Considerations, it is determined that the interest of the United States and the general public will best be served by waiver of United States and foreign patent rights, and therefore the waiver is granted. This waiver shall not affect any patent waiver previously granted.

CONCURRENCE 9/28/00

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APPROVAL

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